

The **RIGHT PEOPLE** for the **RIGHT TEAM**

Do companies really use cross-functional teaming to develop products, or are they just paying lip service to the idea?

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It seems as if everyone has been talking about teams for the last decade. We all work in teams, and there seems to be one for just about everything, from HR to shipping.

But exactly what are cross-functional, product-development teams? They are teams that don't wait until late in the product-development project to communicate requirements and constraints to Engineering. The team solicits opinions from others inside and outside the company, and brings in ideas from everyone who "touches" a product, and most importantly, customers.

Now the question is, are companies organizing and balancing teams?

THE REVISED PRODUCT-DEVELOPMENT TEAM

Concurrent-product development and integrated product

teams began to gain momentum in the 1980s. That's when the quality movement determined that the late introduction of requirements and constraints hurt product design, cost, and reliability. Although engineering-centric designs might be technically superior and innovative, they often leave out essential attributes. Customers might want reliability, ease of service, environmental friendliness, and a reasonable price, along with a host of other never-before-imagined features. Companies quickly began to realize that satisfying the customer is the real objective and that design engineers alone didn't have all the information to do it. It takes inputs from engineering as well as almost every other discipline in a company to design and build products that meet customer needs.

But what is the best mix for the team? The answer is not easy. Industries differ, technologies differ, and products differ. In RD&E (research, development, and engineering), for example, many managers staff teams are based on ratios and adhere to guidelines such as "two technicians for every engineer." But there is no singular solution. There are some research results, however, that can help managers understand this issue.

MEASURING THE METRICS

In 2002, our firm conducted a biannual survey of R&D metrics. It included a major update of what we know about staffing ratios. Respondents identified disciplines involved in product de-

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velopment and in sustaining existing products.

One of our goals was to determine whether or not the ratios we identified a decade earlier had changed and whether the much-discussed integrated-team approach really was being practiced. Survey respondents were asked to identify:

- The number of people in each engineering-related department and the disciplines they used.
- The percentage of time each person spent on new product development (NPD) versus sustaining existing products.
- The number of people in cross-functional departments involved in NPD, including product management, marketing, purchasing, quality, production, and process engineering.
- The percentage of time each of these people spent in new-product development and the time spend sustaining existing products.

The results after analysis were, to say the least, interesting.

It should come as no surprise

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It seems companies are involving cross-functional stakeholders earlier and more often in NPD.

that the survey found RD&E spends about two-thirds of its time (65%) working on NPD and one-third of its time on sustaining older products. This is consistent with what many RD&E managers report and with what we have found over the past 15 years analyzing one company at a time.

A 1990s study indicated that best-practice companies typically allocate less than 30% of resources to sustaining tasks while worst-practice companies assign more than 40% of resources to the same tasks. So a company that tracks this ratio and finds it greater than 40% might reprioritize some RD&E personnel from sustaining to NPD.

Cross-functional ratios are inverted compared to this. Historically, two-thirds of cross-functional resources are focused on sustaining products. This is not surprising in that cross-functional teams support all company products, new and old. Over the last 15 years, some functions, such as marketing, have evolved to spend almost 50% of their time on NPD. So it appears there is more emphasis on using cross-functions approaches in NPD.

Within engineering, there are some interesting nuances. All participants in RD&E devote the same 35% to sustaining products, except for software. Software departments spend 75% of their resources on NPD and only 25% on sustaining older programs. There are perhaps two reasons for this difference. First, in most software companies, sustaining existing products is narrowly defined as fixing bugs and maintenance, which does not include subtle enhancements and improvements other engineering disciplines often consider maintenance.

The second reason lies in the more fluid nature of software. It is

much easier to add, subtract, and move lines of code than to go through another iteration of building, testing, and analyzing physical and virtual prototypes.

The software industry is also only a few decades old, so there are relatively fewer software programs out there to maintain compared to all the different physical devices and machines. But this should balance out over time and the software industry will eventually spend about 35% of its time sustaining products and 65% on NPD.

WHAT'S THE RIGHT MIX?

We believed analysis would show that staffing would remain fairly consistent for cross functions from the 1990s to the 2000s because automation has spread evenly across all engineering disciplines, improving productivity everywhere. Therefore the mix of people in NPD would also remain fairly constant. This hypothesis turned out to be largely valid.

The study's major finding was that companies now allocate much more cross-functional members' time to NPD, especially for marketing. The 2002 survey revealed a 30 to 45% increase in time spent by cross functionals in NPD. It seems, quite conclusively, that companies *are* involving cross-functional stakeholders earlier and more often in NPD. Companies have not only gotten the message of incorporating the customers' voice early in NPD, they have also realized they can be more effective by proactively taking inputs from all internal disciplines that touch the product.

Our research did find significant differences between indus-

tries. Heavy machinery, for instance, has proportionally more engineers on NPD than any other industry. Perhaps managers in heavy machinery have yet to adopt truly cross-functional teams. Or perhaps ratios in different industries need to be different.

In aerospace & defense, for example there are 2.5 engineers for each marketing person working on NPD. In the automotive industry, that ratio climbs 11.5 to one.

Why is it different in automotive, an industry that must entice consumers and where style is important? Perhaps it takes many engineers to design a new vehicle but only a few marketing people to collect the necessary info on customer needs. In aerospace and defense, with highly technical products and long product cycles, it takes many more marketing people per project to gather requirements and maintain the customer-client relationship.

Engineering managers must examine how they allocate staff to NPD teams. Are engineers focused on NPD, or do they spend too much time sustaining past products? Are disciplines outside of marketing and engineering properly used? If so, are they spending the right amount of time at the right time on NPD?

To bring a design to market at the right time, right price, and with the right features, it takes the right ratios working together at the right time. Cross-functional teams are often the only answer.

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